Abstracts

Efficient FET Model Parameter Extraction Using Multi-Plane Data-Fitting and Bidirectional Search Technique

F. Lin and G. Kompa. "Efficient FET Model Parameter Extraction Using Multi-Plane Data-Fitting and Bidirectional Search Technique." 1993 MTT-S International Microwave Symposium Digest 93.2 (1993 Vol. II [MWSYM]): 1021-1024.

A novel FET small-signal model parameter extraction technique is presented. It uses a new optimization approach, in which data-fitting is carried out on two reference planes instead of only one, and the objective junction is minimized by a bidirectional search. As a result, all parameters of a commonly used 15-element small-signal FET equivalent circuit are, for the first time, clearly identified from only one set of measured S-parameters. A self-consistent generation of starting values can be involved regarding the FET in the passive pinch-off operating mode. Moreover, by applying multi-bias data-fitting, which is performed without increasing the number of ordinary optimization variables, it yields robust determination of both the overall bias-independent parasitic and bias-dependent intrinsic elements. For demonstration results are presented for a 0.5-µm MESFET.

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